

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims ~~1-23, 25, 37, 38, 40, 42, 44 and 46~~ (Canceled)

gpc Claim 24. (Currently Amended) A method for adjusting tilting of [an] a broadband optical signal transmitted via an optical conductor through injecting [a plurality of] at least one pump [signals] signal into the optical conductor, the method comprising [the steps of].

transmitting a plurality of transmission bands via the optical conductor;

measuring signal levels of each of the plurality of transmission bands;

injecting the at least one pump signal [from the plurality of pump signals] into the optical conductor when [a prescribed condition in a] at least two signal levels [level] of [at least one] the measured signal levels of at least one of the plurality of transmission bands [occurs] are changing; and

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WST setting a level of the at least one pump signal such that the tilting of a transmission band in which [the prescribed condition does not occur] signal levels do not change remains at least substantially constant at a receiving end of the optical conductor.

Claim 26. (Currently Amended) The method according to claim 24, wherein [the prescribed condition] change of at least two measured signal levels comprises [is] an absence of [a] signal [level] in a transmission band.

~~Claim 27. (Original) The method according to claim 24, wherein at least one further pump signal having a wavelength different from the at least one pump signal is injected into the optical conductor.~~

~~Claim 28. (Original) The method according to claim 27, wherein a first pump signal having a wavelength less than a minimum wavelength of each of the plurality of transmission~~

bands and a second pump signal having a wavelength that is greater than a maximum wavelength of each of plurality of transmission bands are injected into the optical conductor.

Sub C1 } Claim 29. (Currently Amended) [The] A method [according to claim 26,] ~~for~~
adjusting tilting of an optical signal transmitted via an optical conductor through injecting a
plurality of pump signals into the optical conductor, the method comprising:

transmitting a plurality of transmission bands via the optical conductor;

measuring signal levels of each of the plurality of transmission bands;

injecting at least one pump signal into the optical conductor when an absence of a signal
level of the measured signal levels in a transmission band of the plurality of transmission bands
occurs; and

setting a level of at least one pump signal such that the tilting of a transmission band in
which the absence of the signal level does not occur remains at least substantially constant at a
receiving end of the optical conductor;

wherein a pump wavelength of a pump laser used to compensate an absent transmission band corresponds to a mean wavelength of the absent transmission band.

Claim 30. (Currently Amended) The method according to claim 26, wherein in the event of absence of a transmission band, a level [levels] of the [plurality of] at least one pump [signals are] signal is adjusted at a high rate of adjustment based on known required changes in power and tilting and a signal level of the optical signal are readjusted.


Claim 31. (Currently Amended) The method according to claim 24, wherein wavelength and level of one or more of the [plurality of] pump signals are selected such that a prescribed tilting occurs at approximately a predetermined level.

Claim 32. (Currently Amended) The method according to claim 24, wherein the [plurality of] at least one pump [signals are] signal is controlled to minimize tilting at the receiving end of the optical conductor during undisturbed operation.

Claim 33. (Currently Amended) The method according to claim 24, wherein the [plurality] at least one [of] pump [signals are] signal is controlled to minimize tilting in the transmission bands during undisturbed operation.

Claim 34. (Currently Amended) The method according to claim 24, wherein the [plurality] at least one [of] pump [signals are] signal is controlled to keep the level of the optical signal constant.

Claim 35. (Currently Amended) The method according to claim 24, wherein the [plurality] at least one [of] pump [signals are] signal is controlled to keep the transmission bands constant.

 Claim 36. (Original) The method according to claim 24, wherein the plurality of pump signals are injected at the receiving end of the optical conductor.

Claim 39. (Original) The method according to claim 24, wherein each of the plurality of pump signals is injected at a transmission end of the optical conductor.

Claim 41. (Currently Amended) The method according to claim 24, wherein at least one of [the] a plurality of pump signals is injected at the receiving end of the optical conductor and at least one other of [the] a plurality of pump signals is injected at a transmission end of the optical conductor.


Claim 43. (Original) The method according to claim 24, wherein the plurality of pump signals are injected at both the receiving end of the optical conductor and a transmission end of the optical conductor when the pump signals are bidirectional transmission pump signals.

Claim 45. (Currently Amended) An apparatus for adjusting tilting and level of an optical signal transmission via an optical conductor comprising:

at least [two] one pump [lasers] laser that [inject respective] injects pump signals into the optical conductor; and

a controller for measuring at least two signal levels of one of at least two transmission bands, and adjusting a power level of at least one of the respective pump signals when said at least two measured signal levels of at least one of the plurality of transmission bands are changing [a prescribed condition occurs] such that the tilting of a transmission band in which signal levels do not change [the prescribed condition does not occur] remains at least substantially constant at a receiving portion of the optical conductor.

Claim 47. (Currently Amended) The [method] apparatus according to claim 45, wherein [the prescribed condition] change of at least two measured signal levels comprises [is] an absence of a signal [level] in a transmission band.

 Claim 48. (Currently Amended) The apparatus according to claim 45, wherein the wavelengths and power levels of the respective pump signals of [the] at least two pump lasers are selected such that the transmission band in which signal levels do not change [the prescribed condition does not occur] has approximately a predetermined tilting and a predetermined level.

Claim 49. (Currently Amended) The apparatus according to claim 45, wherein the controller adjusts the power level of [the] at least two pump lasers at a high rate of adjustment based on known required changes in power when an absence of signal in a transmission band occurs.

Claim 50. (Currently Amended) The apparatus according to claim 49, wherein controller readjusts at least one of the tilting and the level of the transmission band in which signal levels do not change [the prescribed condition does not occur] after the power level of the at least two pump [laser] lasers has been adjusted at the high rate of adjustment.

Claim 51. (Original) The apparatus according to claim 45, further comprising:
a transmitting portion connected to the optical conductor; and

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an optical amplifier located in at least one of the transmitting portion and the receiving portion;

wherein the controller adjusts at least one of a gain and a tilting of the optical amplifier.
